

2.0 DESCRIPTION OF THE PROPOSED PROJECT AND ALTERNATIVES

This chapter describes the proposed Keystone XL Project (proposed Project) and alternatives to the proposed Project that will be analyzed in full in this Supplemental Environmental Impact Statement (Supplemental EIS). This chapter also describes those alternatives that were considered by the Department of State (Department), but were eliminated from detailed analysis in the document. All alternatives that were eliminated from further analysis were subjected to a screening process to assess whether they were reasonable. In all, three alternatives were carried forward for full analysis in the Supplemental EIS in addition to the Proposed Action. These three alternatives include:

- No Action Alternative, including two intermodal options involving rail-pipeline and rail-tanker transport;
- Keystone XL 2011 Final EIS Proposed Alternative, provided as a reference point to illustrate the differences between it and the proposed route and other alternatives; and
- I-90 Corridor Alternative.

Consistent with the National Environmental Policy Act (NEPA), federal agencies must consider reasonable alternatives to a proposed action, which in this case is an application for a Presidential Permit for a border crossing for a pipeline and ancillary facilities. Considering alternatives helps to ensure that ultimate decisions concerning the proposed Project are well founded and consistent other national policy goals and objectives.

The Department and the cooperating agencies conducted an analysis of alternatives to the proposed Project. The alternatives were developed based on the purpose and need for the proposed Project, as discussed in Chapter 1 - Purpose and Need (Section 1.3). The alternatives analysis relied on information obtained through independent research and analyses conducted by the Department and its third-party contractor, information provided to the Department, state permitting applications (including supplemental submittals), and information and comments provided during scoping for the Supplemental EIS.

TransCanada Keystone Pipeline, LP (Keystone) proposes to construct, operate, maintain, inspect, and monitor a pipeline system that would transport crude oil from its existing facilities in Hardisty, Alberta, Canada, as well as crude oil from an on-ramp in Baker, Montana, to Steele City, Nebraska. The proposed pipeline would connect at that point to the existing Keystone Cushing Extension pipeline (see Figure 2.0-1), which extends from Steele City, Nebraska, to Cushing, Oklahoma.

The proposed Project would have the capacity to deliver up to 830,000 barrels per day (bpd) of crude oil. Keystone has firm contracts to transport more than 555,000 bpd of Western Canadian Sedimentary Basin (WCSB) to delivery points in the Gulf Coast area¹.

¹ The Gulf Coast area refers to the region from Houston, Texas, to Lake Charles, Louisiana. Gulf Coast area refineries include 12 refineries on the Gulf Coast in Texas and three refineries in Lake Charles, Louisiana.

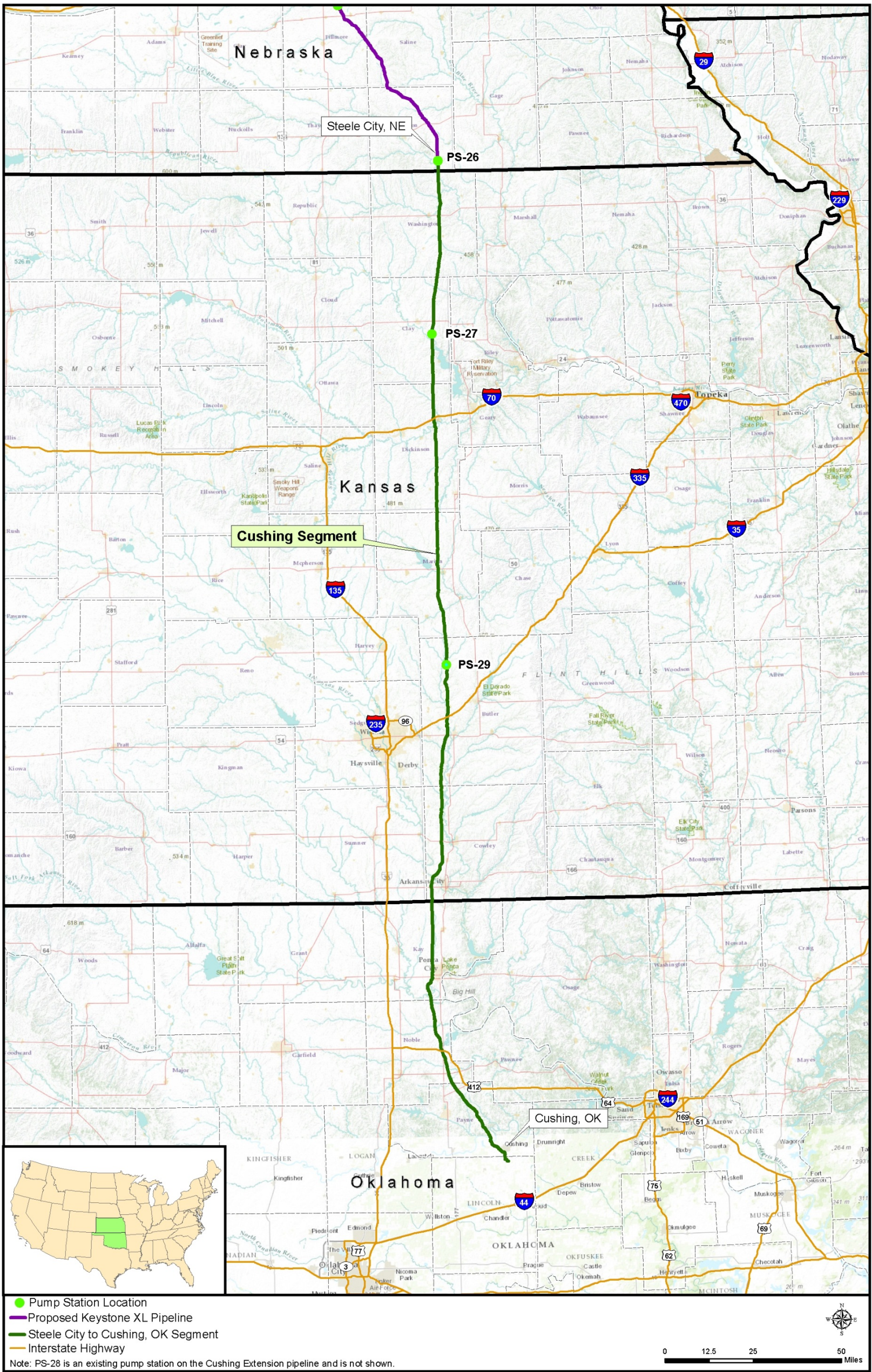
If the proposed Project were approved and implemented, Keystone intends to ship those barrels of crude oil from WCSB to Cushing, Oklahoma via the proposed Project and the existing Cushing extension, and then transport them onward to delivery points on the Gulf Coast via a pipeline currently under construction. Keystone has long-term, firm contracts to deliver 500,000 barrels of crude oil from the WCSB to Cushing, Oklahoma that are currently being transported via the original Keystone pipeline and the Cushing Extension. Keystone has indicated that if this project were approved, it intends to transfer the barrels currently shipped from Cushing, Oklahoma, via the proposed Project. In addition, the proposed Project has firm commitments to transport approximately 65,000 bpd of crude oil, and could ship up to 100,000 bpd of crude oil, originating in the Williston Basin in Montana and North Dakota, which would be delivered to the proposed Project through the planned Keystone Marketlink, LLC, Bakken Marketlink Project in Baker, Montana.

The WCSB crude oil would be extracted predominantly from the oil sands (also referred to as tar sands), which are primarily a combination of clay, sand, water, and bitumen. Bitumen is a material similar to soft asphalt and is extracted from the ground by mining or by injecting steam underground to heat it to a point where it liquefies and can be pumped to the surface. Raw bitumen is too thick to be transported by pipeline. To overcome this, producers reduce the density of the bitumen, generally by diluting it with light, low-viscosity petroleum compounds. Bitumen might require as much as 40 percent dilution. The bitumen can be diluted by mixing it with diluents, which are light hydrocarbon liquids such as natural gas condensate (a low-density mixture of hydrocarbon liquids that are present as gases in the raw natural gas produced and which changes from gas to liquid if the temperature is reduced), refinery naphtha (a very light oil obtained from natural gas production), or a lighter crude oil, such as synthetic crude oil. This diluted bitumen is referred to as dilbit or synbit. This dilution is done to reduce the viscosity of the bitumen so that it is in a more liquid form that can be transported via pipeline.

Dilbit is also processed to remove sand, water, and other impurities. Dilbit is considered a heavy crude oil. The American Petroleum Institute (API) weight, known as API gravity, is a measure of how heavy or light a petroleum liquid is compared to water. If its API gravity is greater than 10 °API, it is lighter and floats on water; if less than 10 °API, it is heavier and sinks. Crude oil is classified as light, medium, or heavy, according to its measured API gravity.

- Light crude oil is defined as having an API gravity higher than 31.1 °API.
- Medium crude oil is defined as having an API gravity between 22.3 °API and 31.1 °API.
- Heavy crude oil is defined as having an API gravity below 22.3 °API.

Another type of Canadian crude oil that would be transported by the proposed Project is synthetic crude oil. Synthetic crude oil is produced from bitumen through a process called upgrading. Upgrading means using fractional distillation and/or chemical treatment to convert bitumen and reduce its viscosity so that it can be pumped through pipelines (bitumen is 1000x more viscous than light crude oil). This process produces a medium weight crude oil. Both synthetic crude oil and dilbit are similar in composition and quality to the crude oils currently transported in pipelines in the United States and being refined in Gulf Coast refineries. Neither type of crude oil requires heating for transport in pipelines.



Source: TransCanada 2012.

Figure 2.0-1 Existing Keystone Cushing Extension

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This chapter includes the following sections:

- Overview of the Proposed Project (Section 2.1), which includes a detailed discussion of the proposed Project, including land requirements, aboveground facilities, design and construction procedures, operation and maintenance, and connected actions, among other aspects; and
- Description of Reasonable Alternatives (Section 2.2), which describes the process used to identify reasonable alternatives to the proposed Project and provides an overview of each of those alternatives.

Information presented in this Supplemental EIS on the proposed Project was obtained from various documents, including the following sources:

- Keystone's application to the Department for a Presidential Permit, dated 4 May, 2012;
- The Department's Final Environmental Impact Statement (FEIS) and attachments, dated 26 August 2011 and prepared for a previous Keystone application;
- Keystone's Environmental Report on the proposed Project;
- Keystone's Supplemental Environmental Report for the Nebraska Reroute portion of the proposed Project;
- Keystone's responses to the Department's data requests; and
- Public comments received.

References

TransCanada Keystone Pipeline, LP. 2012. Keystone Cushing Extension information provided via shapefile. Received November 16, 2012.

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